AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An antenna system for measuring azimuth and elevation angles of an active, signal sending ~~radiosonde (31)~~ radiosonde, the antenna system comprising:

- a first passive antenna ~~group (13)~~ group comprising at least two antenna arrays ~~(11a, 11b)~~, having a direction pattern that is wide at least in an elevation plane,

the first passive antenna ~~group (13)~~ group being adapted to ~~measure an~~ measure the azimuth angle of the ~~radiosonde (31)~~ radiosonde based on phase differences between the antenna arrays ~~(11a, 11b)~~, and based on a direction ~~of the~~ of an antenna ~~field (1)~~ field,

- a second passive antenna ~~group (12)~~ group comprising at least two antenna arrays (10a, 10b)having a direction pattern that is wide at least in the elevation plane,

the second passive antenna ~~group (12)~~ group being adapted to measure the elevation angle of the ~~radiosonde (31)~~ radiosonde based on phase differences between the antenna arrays ~~(10a, 10b)~~, and

- at least one third antenna ~~element (8)~~ element having high gain adapted to receive a telemetry signal, a direction pattern of the at least one third antenna ~~element (8)~~ element being narrow in an azimuth plane and wide in the elevation plane,

wherein

- the first ~~(13) and second (12)~~ and second antenna groups form ~~a solid~~ the antenna ~~field (1)~~ field, and

- the antenna ~~field (1)~~ field is fixedly tilted in a predetermined elevation position,

wherein each one of the at least two antenna arrays of ~~(11a, 11b) of~~ the first passive antenna ~~group (13)~~ group is disposed directly facing each of right and left lateral sides of one of the at least two antenna ~~arrays (10b)~~ arrays of the second passive antenna ~~group (12)~~ group.

2. (Currently Amended) The antenna system of claim 1, wherein the third antenna ~~element (8)~~ element belongs to the antenna ~~field (1)~~ field.

3. (Previously Presented) The antenna system of claim 1, wherein the antenna field is essentially planar.

4. (Currently Amended) The antenna system of claim 1, wherein a gain pattern ~~minimum (35)~~ minimum (null) of each of the antenna arrays ~~(10a, 10b, 11a, 11b)~~ is aligned to a direction of a ground ~~reflection (30)~~ reflection.

5. (Currently Amended) The antenna system according to claim 1, wherein the antenna system comprises means for rotating the antenna ~~field (1)~~ field around a vertical ~~axis (7)~~ axis approximately to a direction of the ~~radiosonde (31)~~ radiosonde while the elevation angle remains essentially constant.

6. (Currently Amended) The antenna system according to claim 1, wherein reception of the telemetry signal from the ~~radiosonde (31)~~ radiosonde is independent ~~of the~~ of azimuth ~~and the~~ and elevation measurements.

7. (Currently Amended) The antenna system according to claim 1, wherein the antenna ~~field (14)~~ field is fixed in an elevation and an azimuth direction, and the antenna ~~field (14)~~ field comprises at least three antenna ~~fields (14)~~ field pointing to different azimuth directions.

8. (Currently Amended) The antenna system of claim 7, wherein a gain pattern minimum (null) of each of the antenna arrays ~~(17a, 17b, 18a, 18b)~~ is aligned to a direction of a ground reflection.

9. (Currently Amended) The antenna system of claim 7, wherein reception of the telemetry signal from the ~~radiosonde (31)~~ radiosonde is independent ~~of the~~ of azimuth ~~and the~~ and elevation measurements.

10. (Currently Amended) The antenna system according to claim 1, wherein the antenna ~~field (1)~~ field is fixedly tilted backwards.

11. (Currently Amended) The antenna system according to claim 1, wherein the antenna ~~field (1)~~ field forms an inverted letter T.

12. (Currently Amended) A method for measuring azimuth and elevation angles of an active, signal sending ~~radiosonde (31)~~ radiosonde, method comprising:

- providing a first passive antenna ~~group (13)~~ group comprising at least two antenna arrays ~~(11a, 11b)~~ having a direction pattern that is wide at least in an elevation plane,

- measuring the azimuth angle of the ~~radiosonde (31)~~ radiosonde based on phase differences of received radiosonde signals between the at least two antenna arrays ~~(11a, 11b)~~ and based on a direction of an antenna ~~field (1)~~ field,

- providing a second passive antenna ~~group (12)~~ group comprising at least two antenna arrays ~~(10a, 10b)~~ having a direction pattern that is wide at least in the elevation plane,

- measuring the elevation angle of the ~~radiosonde (31)~~ radiosonde based on phase differences of the received radiosonde signals between the at least two antenna arrays ~~(10a, 10b),~~, and

- receiving a telemetry signal with at least one third antenna ~~element (8)~~ element having high gain, a direction pattern of the third ~~element (8)~~ element being narrow in an azimuth plane and wide in the elevation plane,

wherein

- the first ~~(13) and second (12)~~ and second antenna groups form ~~a solid~~ the antenna ~~field (1)~~ field, and

- the antenna ~~field (1)~~ field is fixedly tilted in a predetermined elevation position,

wherein each one of the at least two antenna arrays of ~~(11a, 11b) of~~ the first passive antenna ~~group (13)~~ group is disposed directly facing each of right and left lateral sides of one of the at least two antenna ~~arrays (10b)~~ arrays of the second passive antenna ~~group (12)~~ group.

13. (Currently Amended) The method of claim 12, wherein the third antenna ~~element (8)~~ element belongs to the antenna ~~field (1)~~ field.

14. (Currently Amended) The method according to claim 12, further comprising:

aligning a gain pattern minimum (null) of each of the antenna arrays ~~(17a, 17b, 18a, 18b)~~ to a direction of a ground reflection.

15. (Currently Amended) The method according to claim 12, further comprising:

receiving the telemetry signal independently ~~of the~~ of azimuth ~~and the~~ and elevation measurements.

16. (Currently Amended) The method according to claim 12, further comprising:

rotating the antenna system around a vertical ~~axis (7)~~ axis approximately to a direction of the ~~radiosonde (31)~~ radiosonde while the elevation angle remains essentially constant.

17. (Currently Amended) The method according to claim 12, further comprising:

fixedly tilting the antenna ~~field (1)~~ field backwards.

18. (Currently Amended) The method according to claim 12, further comprising:

fixing the antenna ~~field (14)~~ field in an elevation and an azimuth direction, wherein the antenna ~~field (14)~~ field comprises at least three antenna ~~fields (14)~~ fields pointing to different azimuth directions.

19. (Currently Amended) The method according to claim 18, further comprising:

aligning a gain pattern minimum (null) of each of the antenna arrays ~~(17a, 17b, 18a, 18b)~~ to a direction of a ground reflection.

20. (Currently Amended) The method according to claim 18, further comprising:

receiving the telemetry signal independently ~~of the~~ of azimuth ~~and the~~ and elevation measurements.

21. (Currently Amended) The antenna system according to claim 1, wherein each of the at least two antenna arrays ~~(10a, 10b)~~ and the third antenna ~~element (8)~~ element is arranged in a straight line that is tilted with respect to a vertical ~~axis (7)~~ axis.

22. (Currently Amended) The antenna system according to claim 1, wherein the antenna field (14) is fixed in an elevation and an azimuth direction, and the antenna ~~field (14)~~ field comprises four antenna ~~fields (14)~~ fields pointing to different azimuth directions.

23. (Currently Amended) The method of claim 12, wherein each of the at least two antenna arrays ~~(10a, 10b)~~ and the third antenna ~~element (8)~~ element is arranged in a straight line that is tilted with respect to a vertical ~~axis (7)~~ axis.

24. (Currently Amended) The method of claim 12, wherein the antenna ~~field (14)~~ field is fixed in an elevation and an azimuth direction, and the antenna ~~field (14)~~ field comprises four antenna ~~fields (14)~~ fields pointing to different azimuth directions.